EXHIBIT 7

Water Quality Data Report No. 2 (of 6)

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Waste Management
Land Reclamation
Resource Inventory
Agricultural Consulting

May 6, 1991

Mr. Pat Plantenberg
Department of State Lands
Hardrock Mining Bureau
1625 Eleventh Avenue
Helena, Montana 59620

Dear Pat:

Enclosed are two copies of Water Quality Data Report No. 2 summarizing the results of the second round of water sampling at the W.R. Grace vermiculite mine near Libby. Data for this report was collected March 25, 1992. Please forward one copy to Tom Reid at the Water Quality Bureau.

There is little of interest in the water chemistry data. Most sample points showed analyses which were slightly lower than those in November. We attribute this to dilution with surface runoff. The asbestiform fiber analyses were somewhat different in that both Lower Carney Creek and the tailings pond had considerably higher fiber counts than in November. Lower Rainy Creek continues to show high asbestos fiber counts.

We did not sample pore water installations this time since our earlier sampling produced the information we were looking for regarding the source of water in the toe drains. Nor did we sample Upper Rainy Creek at SW-1 because the Rainy Creek diversion was not being used. Instead, we sampled the entire Rainy Creek flow at SW-11 just upstream of the tailings impoundment.

Let me know if you have any questions or comments regarding the data. I'm looking forward to our meeting on tailings impoundment flood routing May 19th.

Sincerely,

Tom Hudson

Tom Hudson
Project Manager

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W.R. GRACE VERMICULITE MINE CLOSURE WATER QUALITY DATA REPORT NO. 2 MARCH, 1991

Submitted to:

Montana Department of State Lands
Hard Rock Mining Bureau
Helena, Montana

Submitted by:

Schafer and Associates
Bozeman, Montana

May 6, 1992

Schafer

Table of Contents

List of Tables

List of Figures

1.0 BACKGROUND

The W.R. Grace vermiculite mine near Libby, Montana was closed in the fall of 1990. As part of the reclamation and closure, particularly as it applies to areas around the tailings impoundment, W.R. Grace submitted to the Water Quality Bureau a proposed Water Quality Monitoring Plan in September, 1991 (Schafer and Associates, 1991). The purpose of the Plan was to establish post-closure water quality data as a means of monitoring the performance of facility reclamation measures.

The plan calls for water sampling at several locations in the Rainy Creek drainage as shown on Figure 1.1. Contingent sampling on the Kootenai was proposed if initial data on Rainy Creek indicated any potential health concerns. Four sampling campaigns were proposed for the first year to assess seasonal variations in water quality. Additional annual sampling campaigns for a minimum of three years following closure were also proposed. The first sampling event took place in mid-November, 1991. This report presents the data from the second sampling event performed on March 25, 1991.

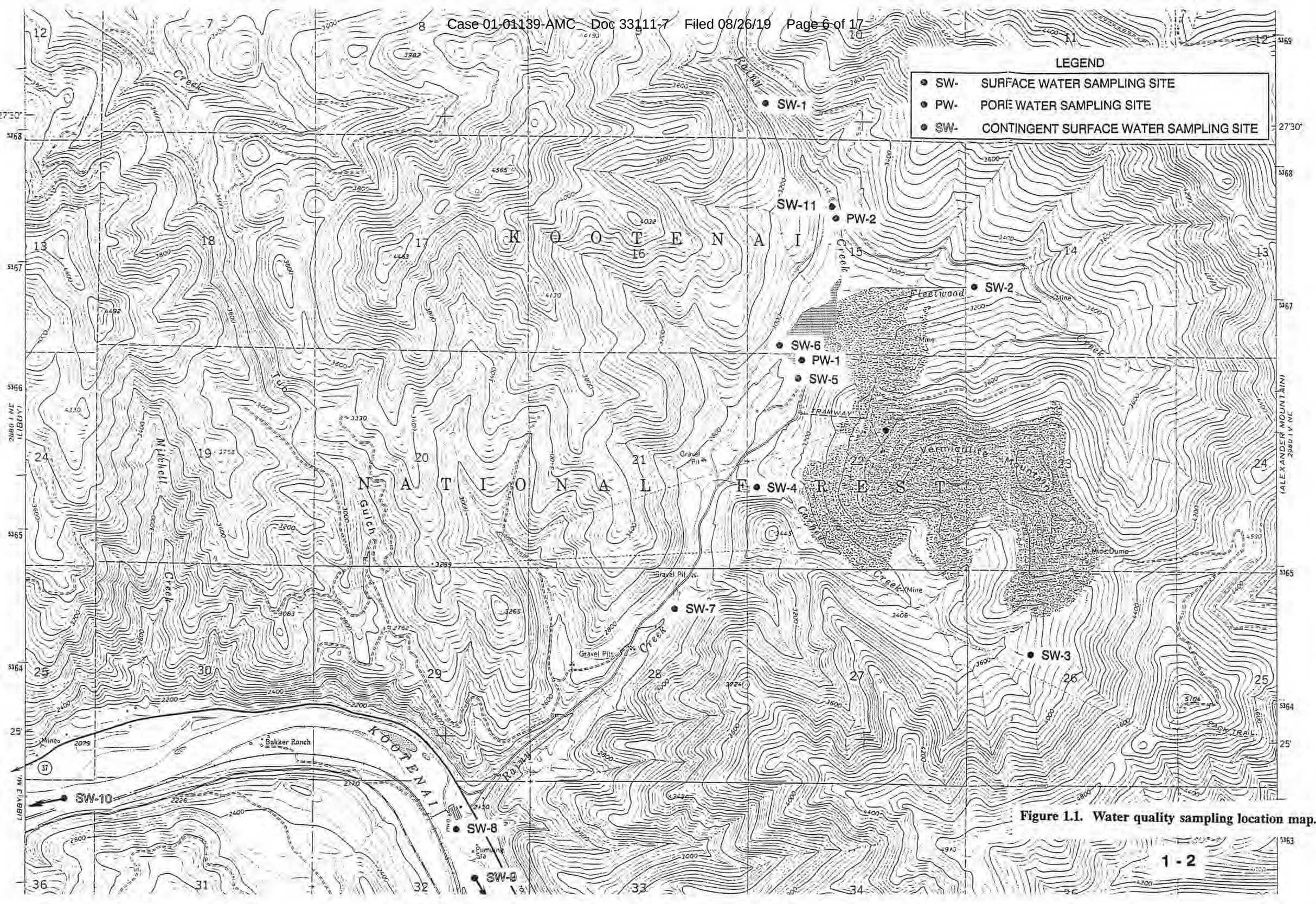

Figure 1.1. Water quality sampling location map.

2.0 METHODS

Conditions at the time of sampling were sunny and very mild with a high during the day of nearly 70° F. There was still some snow at the higher elevations but it was apparent that there would be no significant spring runoff this year. The Rainy Creek diversion was not in use; all of Rainy Creek flowed in the natural drainage into the tailings pond. The impoundment was free of ice unlike our November sampling. The decant tower was still not overflowing nor had it done so all winter long in spite of the fact that the impoundment was receiving the entire flow from both Rainy Creek and Fleetwood Creek.

Sampling methods were outlined in the Water Quality Monitoring Plan (Schafer and Associates, 1991) submitted in September, 1991 and modified slightly in the field as described in Water Quality Data Report No. 1 (Schafer and Associates, 1992). Site SW-1, Upper Rainy Creek above the diversion dam, was not sampled this time. In November, Upper Rainy Creek was being fully diverted around the tailings impoundment, however flow was reestablished in the natural channel before the tailings impoundment and this necessitated an additional unplanned sample at SW-11. In March the diversion was not being used and all flow was down the natural stream channel. W.R. Grace does this in the coldest part of winter because of operational problems that are sometimes created by cold weather. For this report we collected a single sample at SW-11 which is the total flow for Upper Rainy Creek.

The preservation techniques and analytical methods used are summarized in Table 2.1. All samples were stored and shipped on ice. Two samples in glass containers (for TPH analysis only) were broken in transit. Metals were analyzed as the "total recoverable" form according to procedures outlined in Standard Methods for Examination of Water and Wastewater (APHA, 1985).

Table 2.1. Summary of sampling and analytical methods for water samples.

Unpreserved Samples		Preserved Samples			Field Parameters	
Component	Analytical Method[1]	Component	Preservation/ Contalner[2]	Analytical Method[1]	Param.	Method
TDS	EPA 160.1	TPH	H_2SO_4/Glass	EPA 418.1	Flow	Pygmy current meter/ Baski
TSS	EPA 160.2	Cu	HNO_3/PE	EPA 220.1/200.7	pH	Field pH meter
Asbest. Fibers	EPA-600/4-83-043	Zn	HNO_3/PE	EPA 289.1/200.7	EC	Field EC meter
Hardness	EPA 130.2	Cd	HNO_3/PE	EPA 213.1/200.7	DO	Field D.O. meter
Alkalinity	EPA 310.1	Pb	HNO_3/PE	EPA 239.2/200.7	Temp.	Field meter
NO_3^-	EPA 353.2	Hg	HNO_3/PE	EPA 245.2		
SO_4^{-2}	EPA 375.3	Fe	HNO_3/PE	EPA 236.1/200.7		
Cl^-	EPA 325.3	As	HNO_3/PE	EPA 206.3		
F^-	EPA 340.2	Ni	HNO_3/PE	EPA 249.1/200.7		
Ca	EPA 215.1/200.7	Cr	HNO_3/PE	EPA 218.1/200.7		
Mg	EPA 242.1/200.7					
Na	EPA 273.1/200.7					
K	EPA 258.1/200.7					
CO_3^{-2}/HCO_3^-	EPA 310.1					

1 EPA procedures are described in 40 CFR Part 136, Table B. Procedures for asbestiform fibers are described in "Analytical Procedures for Determination of Asbestos Fibers in Water" (EPA-600/4-83-043).

2 Samples were acidified to a value less than 2.0. The TPH sample was collected in a 1 L glass bottle; metals were collected in 500 ml polyethylene (PE) bottles.

3.0 PRESENTATION OF DATA

Results of the March 25, 1992 sampling event are summarized in tabular form as follows:

- Table 3.1 is a summary of field parameters including pH, electric conductivity (EC), temperature and flow. Our dissolved oxygen meter was not available at the time of this sampling trip, hence this data was not obtained.
- Table 3.2 is a summary of metal analyses including selected heavy metals and major cations.
- Table 3.3 is a summary of miscellaneous analyses for various anions, petroleum hydrocarbons, hardness, etc.
- Table 3.4 is a summary of asbestiform fiber analyses.

Raw analytical data from Energy Laboratories and EMS Laboratories used to prepare Tables 3.2, 3.3 and 3.4, are included in Appendix A and B, respectively.

Table 3.1. Field data summary.

SITE NO.	DESCRIPTION	pH (su)	EC (mmhos/cm)	TEMP (°C)	FLOW (cfs)	D.O.[3] (ppm)
SW-1	Upper Rainy Creek above diversion dam	Not Sampled				
SW-2	Fleetwood Creek above coarse tails	8.50	0.45	6.8	0.34[1]	
SW-3	Upper Carney Creek at Zook's Dump	8.06	0.70	10.8	<.01[2]	
SW-4	Lower Carney Creek above Rainy Creek	8.61	0.58	4.6	0.51[2]	
SW-5	Tailings dam toe drains	7.26	0.68	9.8	1.26[1]	
SW-6	Tailings pond outfall (surface water sample, only)	8.66	0.36	8.9	0.00	
SW-7	Lower Rainy Creek leaving mine property	7.87	0.58	6.5	2.59[1]	
SW-8	Lower Rainy Creek above Kootenai River	7.98	0.57	5.3	2.92[1]	
SW-9	Kootenai River above Rainy Creek	Not Sampled[4]				
SW-10	Kootenai River below Rainy Creek	Not Sampled[4]				
SW-11[5]	Rainy Creek flow into tailings pond	8.18	0.32	4.6	1.46[1]	
PW-1	Tailings Pond pore water	Not Sampled				
PW-2	Groundwater near SW-11	Not Sampled				

1 Flow measurement was made with a Pygmy current meter.
2 Flow measurement was made with a Baski cutthroat flume.
3 The dissolved oxygen meter was not available.
4 Samples of the Kootenai River were not taken as discussed in the Water Quality Monitoring Plan.
6 The Water Quality Monitoring Plan did not include this site. Rainy Creek reestablishes itself between the diversion dam and the tailings impoundment.

Table 3.2. Laboratory data summary for metals.

SITE NO.	DESCRIPTION	As (mg/l)	Cd (mg/l)	Cr (mg/l)	Cu (mg/l)	Fe (mg/l)	Pb (mg/l)	Hg (mg/l)	Ni (mg/l)	Zn (mg/l)	K (mg/l)	Na (mg/l)	Ca (mg/l)	Mg (mg/l)
SW-1	Upper Rainy Creek above diversion dam	Not Sampled												
SW-2	Fleetwood Creek above coarse tails	<0.005	<0.001	<0.02	<0.01	0.03	<0.01	<0.001	<0.03	<0.01	8	5	79	15
SW-3	Upper Carney Creek at Zook's Dump	<0.005	<0.001	<0.02	<0.01	0.53	<0.01	<0.001	<0.03	<0.01	9	8	106	26
SW-4	Lower Carney Creek above Rainy Creek	<0.005	<0.001	<0.02	<0.01	0.11	<0.01	<0.001	<0.03	<0.01	12	9	85	26
SW-5	Tailings dam toe drains	0.005	<0.001	<0.02	<0.01	0.06	<0.01	<0.001	<0.03	<0.01	12	7	93	25
SW-0	Blind Control (Replicate of SW-5)	0.005	<0.001	<0.02	<0.01	0.06	<0.01	<0.001	<0.03	<0.01	12	7	93	25
SW-6	Tailings pond surface water	<0.005	<0.001	<0.02	<0.01	0.19	<0.01	<0.001	<0.03	0.01	6	4	51	13
SW-7	Lower Rainy Creek leaving mine property	<0.005	<0.001	<0.02	<0.01	0.15	<0.01	<0.001	<0.03	0.02	10	7	87	22
SW-8	Lower Rainy Creek above Kootenai River	<0.005	<0.001	<0.02	<0.01	0.11	<0.01	<0.001	<0.03	<0.01	10	6	87	21
SW-9	Kootenai River above Rainy Creek	Not Sampled												
SW-10	Kootenai River below Rainy Creek	Not Sampled												
SW-11	Rainy Creek flow into tailings pond	<0.005	<0.001	<0.02	<0.01	0.24	<0.01	<0.001	<0.03	0.01	4	3	64	11
PW-1	Pore water from tailings	Not Sampled												
PW-2	Groundwater near SW-11	Not Sampled												

Table 3.3. Laboratory data summary for miscellaneous constituents.

SITE NO.	DESCRIPTION	SO_4^{-2} (mg/l)	Cl^- (mg/l)	CO_3^{-2} (mg/l)	HCO_3^{-1} (mg/l)	TDS (mg/l)	TSS (mg/l)	Hardness (mg/l)	Alkalinity (mg/l)	NO_3^- (mg/l)	F^- (mg/l)	TPH (mg/l)
SW-1	Upper Rainy Creek above diversion dam	Not Sampled										
SW-2	Fleetwood Creek above coarse tails	18	4	0	293	291	1	258	240	<0.05	0.26	<0.1
SW-3	Upper Carney Creek at Zook's Dump	11	2	0	452	431	6	371	370	0.06	0.21	<0.1
SW-4	Lower Carney Creek above Rainy Creek	21	3	0	370	349	4	316	303	0.23	0.20	<0.1
SW-5	Tailings dam toe drains	12	7	0	397	383	3	335	325	0.06	3.0	No Data[1]
SW-0	Blind Control (Replicate of SW-5)	12	7	0	392	375	<1	334	321	0.07	3.2	<0.1
SW-6	Tailings pond surface water	9	3	0	206	191	12	182	169	<0.05	0.29	<0.1
SW-7	Lower Rainy Creek leaving mine property	11	7	0	350	329	6	308	287	<.05	1.7	<0.1
SW-8	Lower Rainy Creek above Kootenai River	11	7	0	345	293	5	303	282	<0.05	1.5	<0.1
SW-9	Kootenai River above Rainy Creek	Not Sampled										
SW-10	Kootenai River below Rainy Creek	Not Sampled										
SW-11	Rainy Creek flow into tailings pond	5	<1	0	236	196	36	205	193	<0.05	0.13	No Data[1]
PW-1	Pore water from tailings	Not Sampled										
PW-2	Groundwater near SW-11	Not Sampled										

[1] Sample bottles broke during shipment.

March 1992

Table 3.4. Laboratory data summary for asbestiform fibers.

SITE NO.	DESCRIPTION	DETECTION LIMIT (MFL)*	FIBERS <5μm (MFL)*	FIBERS >5μm (MFL)*	FIBERS >10μm (MFL)*	FIBER MASS (μg/l)
SW-1	Upper Rainy Creek above diversion dam	Not Sampled				
SW-2	Fleetwood Creek above coarse tails	0.8	8.9	3.1	2.3	47
SW-3	Upper Carney Creek at Zook's Dump	0.3	20.7	5.3	1.6	50
SW-4	Lower Carney Creek above Rainy Creek	1	65	55	19	950
SW-5	Tailings dam toe drains	1.6	<1.6	<1.6	<1.6	BDL*
SW-0	Blind Control (Replicate of SW-5)	0.2	<0.2	<0.2	<0.2	BDL*
SW-6	Tailings pond surface water	8.2	500	270	120	1800
SW-7	Lower Rainy Creek leaving mine property	1	66	34	9.2	180
SW-8	Lower Rainy Creek above Kootenai River	0.8	51	30	9	270
SW-9	Kootenai River above Rainy Creek	Not Sampled				
SW-10	Kootenai River below Rainy Creek	Not Sampled				
SW-11	Rainy Creek flow into tailings pond	2	1.9	2	2	1.6

* MFL = Million fibers per liter; BDL = Below detection limit

4.0 DATA ANALYSIS

The significant findings of this sampling event are as follows:

- Streamflow was about 50 percent higher than in November. This appears to have resulted in a dilution of dissolved solids in most samples. Predictably, the tailings impoundment toe drain water chemistry is virtually unchanged because it receives little or no direct surface runoff. The stability of this sample location is also reflected in the volumetric flow which was about the same as in November. The tailings pond surface water showed substantially higher dissolved solids than in November when ice was on the pond surface. This observation reinforces our theory that successive freeze/thaw cycles may purify the water at the surface of the pond.

- The elevated zinc concentrations encountered on the earlier sampling event appear to be much lower on this round of sampling but the samples showing detectable levels are generally at the same locations as in November.

- Higher asbestiform fiber counts were measured at SW-4 (Lower Carney Creek) and SW-6 (tailings pond surface water). The Carney Creek fiber count can probably be attributed to higher runoff. The high impoundment fiber counts may be due to the absence of an ice layer on the pond. It was breezy the day of sampling and the wind may have caused suspension of particles near the shore. SW-11 (Rainy Creek above the tailings pond) also had a slight showing of asbestiform fibers whereas in November there was none detected. We attribute this to the overall heavy suspended solids load in this particular sample. The sample was taken in mid- to late-afternoon when the temperature was highest and runoff appeared to be high as well. The sediment loading in Upper Rainy Creek was clearly visible at the time of sampling. Extensive clear-cutting in the Upper Rainy Creek drainage may be a contributing factor.

- We have assembled a mass flow schematic diagram for the sampling area in Figure 4.1 as we did in the prior data report. Lower Rainy Creek again appears to be a major source of asbestiform fibers but Carney Creek is a significant factor in the overall fiber loading, accounting for 61 percent of the total load discharged at the mouth of Rainy Creek. This is a result substantially different than seen in November. The Lower Carney Creek sample has a higher average fiber mass than other samples. This suggests a possible transport mechanism to explain variations in data observed to date. During periods of high flow, relatively coarse material may wash out of the Carney Creek drainage and settle out in the Rainy Creek drainage. It is probable

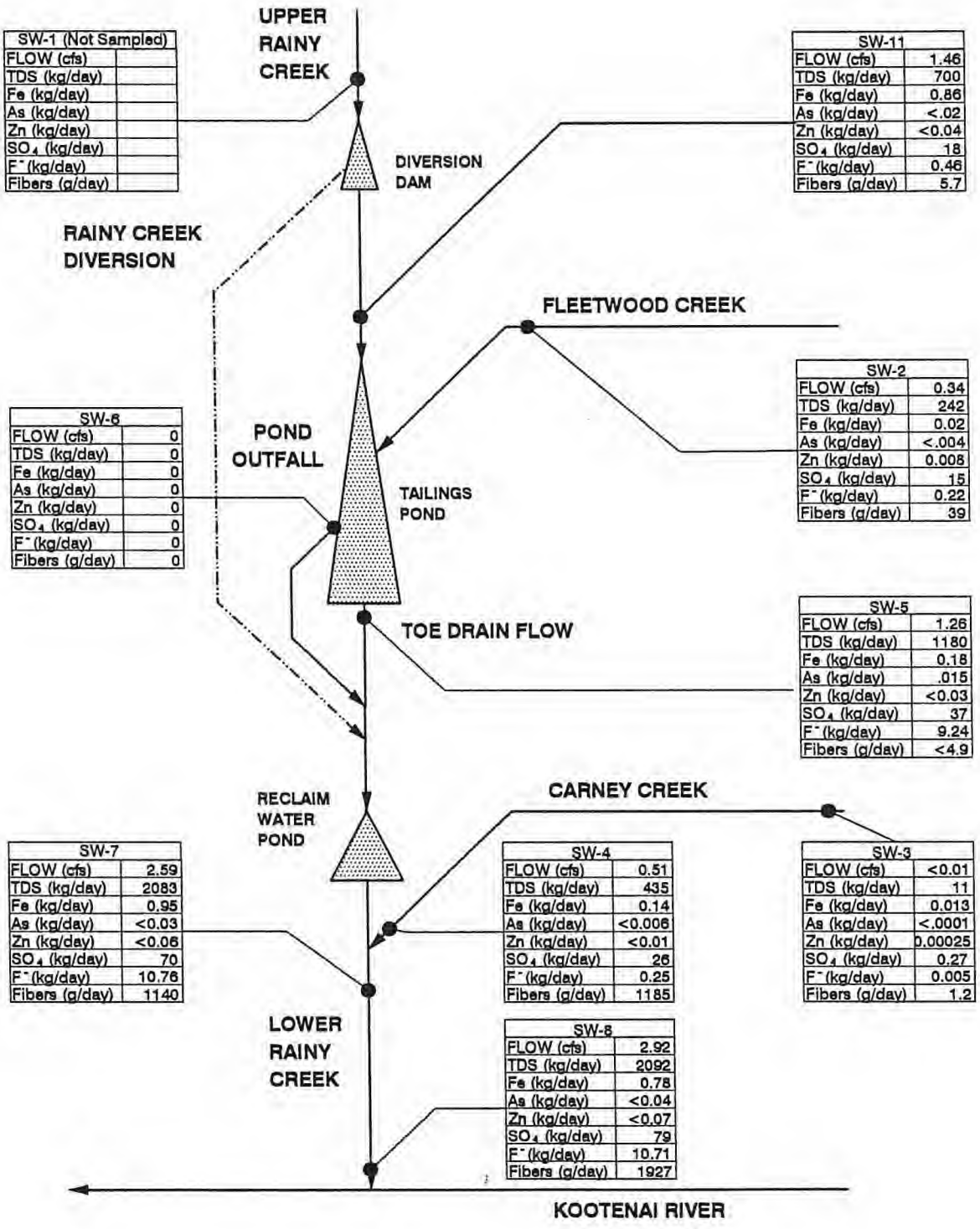

Figure 4.1 Schematic flow diagram of the Rainy Creek drainage with mass flow measurements for selected components.

that our sampling does not measure a significant portion of material transport in which material shifts in the stream bed without ever becoming fully entrained. These larger particles may be attrited into smaller more readily transportable particles which are carried out at a more uniform rate. Interestingly, on this round of sampling at least, the tailings impoundment was actually working to reduce asbestiform fibers in stream flows entering it. Both Upper Rainy Creek and Fleetwood Creek had detectable levels of asbestiform fibers but the toe drains, which were the only points of discharge from the pond, did not.

- Table 4.1 compares measured water quality values to existing standards. Once again, fluoride and asbestiform fibers appear to be the primary areas of concern. One sample (SW-3, Upper Carney Creek at Zook's dump) was slightly above the drinking water standard for Fe. Lower Carney Creek is within that standard, however.

Table 4.1 A comparison of measured water quality data with drinking water standards.

Constituent	Measured Concentration Range	Primary Drinking Water Standard	Secondary Drinking Water Standard	Location of Sample with Maximum Concentration
	(mg/l except as noted)			
As	<0.005 to 0.005	0.05		SW-5
Cd	<.001	0.005[1]		All
Cr	<.02	0.1[1]		All
Cu	<.01		1.0	All
Fe	0.03 to 0.53		0.3	SW-3
Pb	<.01	0.05		All
Hg	<.001	0.005		All
Ni	<.03			All
Zn	<0.01 to 0.02	5.0		SW-7
Asbestos (MFL)	<0.2 to 120	7.0[1,2]		SW-6
SO_4^{-2}	3 to 21		250.	SW-4
Cl^-	<1 to 7		250.	SW-5, -7 and -8
NO_3^-	<0.05 to 0.23	10.0		SW-4
F^-	0.13 to 3.0		2.0	SW-5
pH (su)	7.26 to 8.66		6.5 to 8.5	SW-5(min); SW-6(max)
TDS	191 to 431		500.	SW-3

[1] These standards are added or revised effective July 1992.

[2] Fiber counts are based on fibers greater than 10 microns in length with an aspect ratio greater than 3:1.

REFERENCES

American Public Health Association, 1985. Standard Methods for the Examination of Water and Wastewater, Part 300: Determination of Metals.

Schafer and Associates, 1991. W.R. Grace Vermiculite Mine Closure Water Quality Monitoring Plan, submitted to Montana Department of Health and Environmental Sciences, Water Quality Bureau.

Schafer and Associates, 1992. W.R. Grace Vermiculite Mine Closure Water Quality Data Report No. 1, November 1991, submitted to Montana Department of State Lands, Hard Rock Mining Bureau.